



MALNUTRITION AMONG SCHOOL CHILDREN OF VAISHALI DISTRICT IN BIHAR

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ABSTRACT

Malnutrition continues to be a primary cause of ill health and mortality among children. Poor nutritional status during childhood is the determinant of ill health outcomes. This study was designed to study the nutritional status of school going children. The objective of the study is to assess the nutritional status of 6-13 year school going children. 100 school going student were selected from five different schools of Vaishali District. The study was carried out by using the tools to analyze the nutritional status; self designed pretested questionnaire and water low classification was used to find out the nutritional status of children. Anthropometric data revealed that out of total children screened (n=100) according to nutritional status of height for age (stunted) 38% of student was normal, 25% student was mild, 22 % student was moderate and 15% student was severe. Same as nutritional status of weight for height (wasted) found that 45 % of student was normal, 30 % was mild, 24 % student was moderate and 3% student were severe. The result shows that the nutritional status of school- aged children is considerably not satisfying. Awareness regarding importance of good nutrition and dietary knowledge are important of nutritional status of school children. It is recommended that mother should be given awareness about healthy, locally available, low cost food for good health of their children.

KEYWORDS: School, Children, Malnutrition, Awareness and Food.

INTRODUCTION:

Nutrition is one of the basic requirements of any living organism to grow and sustain life. But the quality and quantity of nutrients necessary for normal growth and to keep an organism in good health during its life span varies with the age of the organism. Any major deviation in the nutrient intake either in quality or in quantity from its requirement can also affect growth and life span in a number of way particularly in the later period/growth is more influenced by nutrition.

Poor socio-economic conditions in developing and underdeveloped countries often result in under-nutrition since intrauterine life till early childhood and attempts must be made to ensure their appropriate nutrition during school-age. Under-nutrition and infections like diarrhoea, respiratory infections, malaria, TB etc. are inter-dependent and parts of a vicious cycle.

Dietary requirement of essential nutrients varies with age, gender, physiological status and physical activity.

Globally, millions of school-going children suffer from under-nutrition. In India, National Family Health Survey-3 (NFHS-3) estimated that in 2006, 24% under-5 years-aged children were severely malnourished (<3 standard deviation of the reference value suggested by the Indian Academy of Paediatrics) according to the height-for-age scale and 16% according to the weight-for-age values.

Preventable infections are also common in India. All these factors undoubtedly hamper their attendance and scholastic performance in school. Nutritional support through school meal program during primary education serves the dual purpose of partial correction of nutritional inadequacies along with reduction in school drop-out rate.

Government-sponsored Cooked Mid-Day Meal Program was rolled-out in 1995 to address the issues of universal coverage of primary education through increased enrolment, improving school attendance, retention and promoting health and nutrition among school children. Affecting 16% population, under-nutrition among primary school children is one of the major public health concerns currently in India.

On growth and nutritional status, but height, weight, mid-upper arm circumference, head circumference, chest and fat fold (skin fold) at triceps are most frequently used. In spite of high prevalence of Protein Calorie Malnutrition among children, systematic and extensive growth studies in India are not adequate to highlight either the variation in growth or its change in different parts of the country in different communities.

The childhood years (ages 6-13) are a unique developmental time when children undergo critical physical, cognitive, and social changes. During this time, children enter school, and their social context broadens beyond their families. Nutrition is the science that interprets the relationship of food to the functioning of the living organism. Nutritional status is the condition of health of an individual as influenced by nutrient intake and utilization in the body.

Malnutrition, in every form, presents significant threat to human health. In many

cases, family dietary patterns can be particularly attributed to genetic factor and hereditary cultural factor. Breakfast consumption has been identified as a important factor in the nutritional well being of children.

Physical measurement like body weight, height, mid upper arm (MUAC) circumferences of arm and head circumferences of children had been extensively used to define health and nutritional status. According to the age, body weight and height, a number of indices and classification have been suggested, important among them are those proposed by water low (1977) using height-forage, weight-for-age parameter.

Studies addressing under-nutrition were mostly restricted to under-5 populations, whereas very few studies addressed school-going children to assess the magnitude of the problem, role of the mid-day meal programs and factors attributable for undernutrition. Hence, a cross-sectional study was conducted among children receiving school meal program (6-13 yrs.) in Vaishali District, Bihar, to understand the malnutrition scenario.

OBJECTIVES:

- Assessment of the degree of malnutrition among school going children (6-13 year) of Vaishali District.
- To study the food consumptions pattern of school going children.

Research Design:

The study was conducted recruiting school going children. Schools were selected from the Vaishali district, Bihar.

Sample:

A total of 100 school going children were selected randomly between the age group of 6-13 year.

METHODOLOGY:

Questionnaire Method:

The self constructed questionnaire was used to collect the information regarding general profile, anthropometric status and dietary intake. Pilot Study was conducted to assess the reliability and validity of the questionnaire.

Nutritional status of the children was assessed by anthropometric measurements. Under nutrition that is wasting and stunted were identified according to water low's classification. Nutritional status of all the selected children was assessed by measuring body heights (cm) and weight (kg). Arm and head circumferences were also measured. Interpretation of Indicators

$$\text{Weight/ Height (\%)} = \frac{\text{Weight of Child X 100}}{\text{Weight of normal child at same height}}$$

$$\text{Height/Age (\%)} = \frac{\text{Height of Child X 100}}{\text{Height of normal child at same height}}$$

Water Low Classification	Weight for Height (wasting)	Height for Age (stunting)
Normal	>90	>95
Mild	80-90	90-95
Moderate	70-80	85-90
Severe	<70	<85

Height and weight measurement:

Height of each subject was measured in a standing position to the nearest 0.1 cm using non-stretchable steel tape. A weighing machine was used to measure body weight to the nearest of 0.5 kg. The individual were kept with minimum clothing and without shoes.

Dietary intake:

The food consumption frequency was recorded in terms of intake of cereals, pulses, milk and milk product, green leafy vegetable, roots and tubers, fruits, meat and poultry, fat and oil and sugar.

RESULTS AND DISCUSSION:**Table 1: Distribution of the samples according to their nutritional status**

Attributes		Frequency (%)
Height for Age (Stunted)	Normal	38 (37.60)
	Mild	25 (25.0)
	Moderate	22 (21.9)
	Severe	15 (15.0)
Weight for Height (Wasted)	Normal	45 (44.5)
	Mild	30 (29.8)
	Moderate	24 (23.8)
	Severe	3 (3.0)

According to nutritional status of height for age (stunted) found that 38% of student was normal, 25% student was mild, 22% student was moderate and 15% student was severe. Same as nutritional status of weight for height (wasted) found that 45% of student was normal, 30% was mild, 24% student was moderate and 3% student were severe. So major finding was shows that the majorities of stunted student were higher than wasted student.

Table 2: Distribution of children according to their Head Circumference

S. No.	Head Circumference (in cm)	Frequency	Percentage (%)
1.	15-20	60	60.0
2.	21-25	40	40.0
	Total	100	100.0

Out of 100 children 60.0% cases were under the range from 15-20cm. 40.0% cases were under the range from 21-25cm in head circumferences.

Table 3: Distribution of children according to their Arm circumference

S. No.	Mid Upper Arm Circumference (in cm)	Frequency	Percentage (%)
1.	5-6	58	58.0
2.	7-8	42	42.0
	Total	100	100.0

Out of 100 children 58.0% cases were under the range from 5-6 cm. 42.0% cases were under the range from 7-8% in arm circumferences.

Table 4: Frequency distribution of the respondent on the basis of various food stuff (N= 100) Food items Daily Weekly fort nightly Monthly Occasionally Never

Food Items	Daily		Weekly		Fort night		Monthly		Occasionally		Never	
	N	%	N	%	N	%	N	%	N	%	N	%
Grain												
Roti	90	92.0	7	7.0	1	1.0	-	-	-	-	-	-
Paratha	80	77.0	20	20.0	1	1.0	-	-	2	2.0	-	-
Rice	11	11.0	29	29.0	11	11.0	30	30.0	8	8.0	10	10.0
Pulses												
Red gram	-	-	21	21.0	21	21.0	12	12.0	40	40.0	11	11.0
Chola	2	2.0	31	31.0	26	26.0	20	20.0	9	9.0	12	12.0
Chana dal	11	11.0	45	43.0	21	21.0	8	8.0	4	4.0	13	13.0
Lentil	3	3.0	11	11.0	18	18.0	8	8.0	11	11.0	49	49.0
Pea	19	19.0	9	9.0	14	14.0	6	6.0	2	2.0	50	50.0
Fish	2	2.0	8	8.0	14	14.0	13	13.0	12	12.0	51	51.0
Egg	3	3.0	18	18.0	26	26.0	23	23.0	6	6.0	24	24.0
Meat	11	11.0	9	9.0	11	11.0	21	21.0	7	7.0	41	41.0
Coconut	3	3.0	23	23.0	40	40.0	18	18.0	9	9.0	9	9.0
Almond	16	16.0	50	50.0	17	17.0	8	8.0	4	4.0	5	5.0
Cashew nut	9	9.0	48	48.0	23	23.0	8	8.0	4	4.0	8	8.0
Pistachio	3	3.0	14	14.0	20	20.0	16	16.0	25	25.0	21	21.0
Fruits & Vegetable												
Green leafy vegetable	25	25.0	42	42.0	17	17.0	10	10.0	1	1.0	4	4.0
Yellow vegetable	24	24.0	30	30.0	25	25.0	11	11.0	4	4.0	6	6.0
Apple	19	19.0	50	50.0	18	18.0	8	8.0	2	2.0	3	3.0
Guava	61	61.0	9	9.0	12	12.0	-	-	6	6.0	12	12.0
Banana	11	11.0	37	37.0	25	25.0	15	15.0	6	6.0	6	6.0
Milk & Milk Product												
Ghee	22	22.0	52	52.0	12	12.0	6	6.0	1	1.0	4	4.0
Cheese	74	74.0	10	10.0	10	10.0	4	4.0	-	-	2	2.0
Curd	15	15.0	38	38.0	20	20.0	17	17.0	5	5.0	5	5.0
Fat & Oil												
Oil, fat	53	53.0	18	18.0	8	8.0	3	3.0	9	9.0	9	9.0
Sweets	41	41.0	7	7.0	21	21.0	11	11.0	11	11.0	11	11.0

Table 4 indicates the percentage of food consumption using by school going children. 90 % of respondent were eat Roti daily , 80 % of respondent were eat paratha daily, 30 % of respondent were eat rice monthly, 40% of respondent were eat red gram occasionally, 31% of respondent were eat chola weekly, 43% of respondent were eat chana dal weekly, 45% of respondent were never eat lentil, 50 % of respondent never eat pea, 15 % of respondent were eat fish monthly, 26 % of respondent eat egg fort nightly, 20 % of respondent eat meat monthly 4% of respondent eat coconut fort nightly , 50 % of respondent eat almond weekly, 48% of respondent eat cashew nut daily, 20 % of respondent eat pistachio fort nightly, 42 % of respondent eat green leafy vegetable weekly, 52 % of respondent eat fruits weekly, 55 % of respondent eat ghee weekly, 41 % of respondent eat sweets daily.

DISCUSSION:

According to nutritional status of height for age (stunted) found that 38% of student was normal, 25% student was mild, 22 % student was moderate and 15% student was severe. Same as nutritional status of weight for height (wasted) found that 45 % of student was normal, 30 % was mild, 24 % student was moderate and 3% student were severe. 60.0% cases were under the range from 15-20cm. 40.0% cases were under the range from 21-25cm. 58.0% cases were under the range from 5-6. 42.0% cases were under the range from 7-8%. Food consumption daily by the entire subject includes grains, pulses and legumes, fruits and vegetable, milk and milk product and fat & oil. Regarding the consumption of cereals (chapatti, paratha , rice.) it was found that the good proportion (92%) of the cereals consumed daily by children and Consumption of pulses (lentil, chola, chana dal, and pea) by the children was found to be frequent 50% on weekly. Consumption of vegetable and fruits take by the children was found 60% on daily basis. Consumption of milk and milk product by the children were found 75% on daily, 53 % of respondents were found to consumption fat and oil daily.

Regarding the consumption of pulses it was found that a good proportion (71.33%) of the subject consumed the item daily and 22.66% consumed 4-6 times per week. Consumption of milk and milk products by the subject was also found to be frequent, 86.66% consumed milk on daily basis whereas, and 12.66% consumed milk 4-6 times per week. Percentage of the children (32%) consuming green leafy vegetable 4-6 times per week was higher than those (19.33%) who were consuming daily. Intake of all the nutrients in 7-9 year age group.[3].

CONCLUSION:

Nutrition is important particularly for a school child. It the fast of the sleep hours and prepares a child for problem solving for problem solving and memory spans and memory spans in the learning period at school. Children who skip breakfast do not make up for nutrients and energy deficits later in the day and tend to perform more poorly on tests of cognition than those who eat food. To sum up all these observations among 6-13 year school going children of Vaishali district on anthropometric status of the children revealed that out of 100 children category according to nutritional status of height for age (stunted) found that 38% of student was normal, 25% student was mild, 22 % student was moderate and 15% student was severe. Same as nutritional status of weight for height (wasted) found that 45 % of student was normal, 30 % was mild, 24 % student was moderate and 3% student were severe. Owing to multistage sampling technique, this sample was considered to be a representative sample of school going children in Vaishali. Despite the aforementioned limitations we believe that based on its large, representative sampling, robust methodology and detailed analyses, this study could provide important evidences regarding the patterns and predictors of undernutrition among school-children of Vaishali. From the findings of this study, it appeared that an appropriate community-based nutritional intervention is urgently needed in India, especially in the poor-resourced sectors, with the aim of improving community-level childhood nutritional status targeting the foodinsecure population. Corroborating with the findings of the NFHS-3, current study also indicated that parental literacy to be most important and modifiable predictors of under-nutrition among school-children. It is thus the onus on the pillars of the democracy in India to ensure 'Right to education' for every child in this country to empower the future generation with appropriate education and ideal nutrition.

Govt. of India is required to formulate an appropriate national policy on growth and monitoring of adolescents and school children as there's none at present. To achieve the goal, a comprehensive program with appropriate policy implication is needed to be complemented with a robust program management. Routine monitoring and analysis in a multi-institutional collaborative approach will help to identify and tackle the enormity of the existing problem. The study explored the malnutrition scenario among primary and upper primary students in Vaishali District, Bihar. It is a matter of great concern that only less than one-fourth students had appropriate or ideal nutritional status and rest were in various stages of food deprivation. Strengthening of existing school meal program is needed, with emphasis on malnourished and high risk children especially in rural areas with lower parental education and poor sanitary practices. Nutritional surveillance involving above students seems to be beneficial.

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